

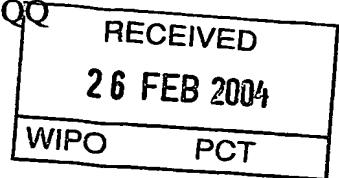


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10/534332

INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ



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1/77

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The Patent Office

 Cardiff Road
 Newport
 South Wales
 NP10 8QQ

1. Your reference

The Ashley CHAIR

2. Patent application number

(The Patent Office will fill in this part)

0301962.7

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Mr Peter Anthony Ashley

233 Grange Road

Felixstowe

Suffolk. 8554362001

IP11 2QD

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

The ASHLEY CHAIR

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

 FLYNN-IP
 10 NORTON ROAD
 LODDON
 NORWICH

 Patents ADP number (if you know it) NR14 6JN
 0860272400

~~P. A. Ashley~~
~~233 Grange Rd~~ 8554362001
~~Felixstowe~~
~~Suffolk~~
~~IP11 2QD.~~

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Country

Priority application number
(if you know it)Date of filing
(day / month / year)

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Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

N O

- any applicant named in part 3 is not an inventor, or
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Description 6

Claim(s)

Abstract

Drawing(s)

7 + 7

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Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

P. Ashley

Date 28.1.03

12. Name and daytime telephone number of person to contact in the United Kingdom

PETER ASHLEY
01394 285048

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1. Description of invention

The present invention relates to an ordinary looking armchair which transforms into a machine of the type which has the capability of a multiple exercises unit and having a cable and pulley system connecting the weight stack to the exercise modules and operated while being seated.

Description of prior art

This invention relates to exercise apparatus designed to exercise the human body, and the purpose of such machines is to tone, condition and improve the appearance of the muscles, and for the body to become healthier thus reducing the possibility of heart attacks. There have been many exercise devises and machines designed for home and office use which have been available for many years, and have steadily gained in popularity with the general public.

These machines were normally found in gyms or athletic clubs, but they are found more and more frequently in homes and offices. A desk worker, house bound patient, business executive computer operative, and other workers which perform sedentary tasks, do not always have access to facilities of a gymnasium available. As the average life span increases so does the need to perform physical exercises to keep healthy especially in later life. It is important that an exercise apparatus should be able to exercise and tone as many muscle groups of the body as possible, to provide the most complete workout. These types of machines are invariably tall and cumbersome, because of the cable and pulley coupling system being somewhat inefficient. When the exercise machine is not in use it becomes an eyesore and is invariably removed to the bedroom, spare room, attic or garage. It has only one function and cannot be used for any other purpose than for what it is designed. Another design consideration for exercise machines is the need to provide selective and variable mechanical resistance for the various muscle groups and movements for exercising them. Impedance must be adjustable so that a weaker person can exercise without straining the muscles, while the stronger individual can select sufficient resistance for his or her strength capabilities.

The need has arisen for a more compact multi exercise machine requiring less floor space and having a dual function. It is also important to have a better looking machine, which blends in with the surroundings and have an esthetic and pleasing appearance.

The prior art has been deficient in this respect, and the present invention fulfills this need and is an ordinary looking armchair found in any living room office or gymnasium, but is transformed into an exercise machine with in seconds. The seat of the chair lifts up and looks in position for performing multiple exercises, and thus exercising most of the muscle groups in a normal workout. Each exercise routine operates independently and has a unique coupling system, which allows the exerciser (he or she) to perform many routines normally, performed on a much larger machine. When the machine is not in use it is simply lowered down and reverts to a normal looking comfortable armchair.

Summary of the invention.

The present invention provides an exercise apparatus that is designed to provide a total body workout incorporating a module for a butterfly press, pectoral press, leg extension and biceps exercise, high pull and rowing exercise, and a bicycle exercise which is an attachment.

It is an ordinary looking comfortable armchair with a cushioned seat, a padded back support and padded armrests for comfort. It has wheel casters, which allows the chair to be moved to any desired position. It is in fact an ordinary looking comfortable easy armchair, which transforms into a machine of the type having the capability of a multiple exercises unit. It has a cable and pulley system connecting the exercise modules to a weight stack, and the said exercise modules operated while the exerciser is seated. The chair when raised to the exercise position is the normal height for an exercise machine, while in the lower position it is the normal height for an armchair.

Exercise of the human body is accomplished against reactance to movement, such as a stack of free weights rubber tension bands, hydraulic air cylinders, springs, Electro magnetism, or dynamic friction. The reactance to movement for the invention is achieved with a stack of free-weights but can be adapted to suit other forms of reactance. The weight stack is at the rear of the chair and the flexible weight guides are held taught when the chair is raised to exercise height. Also the exercises can be preformed in front of the television, listening to music or just sitting in front of a fire in the living room, and when finished lowering the seat folding away the modules and a normal armchair is seen.

Brief Description of drawings

Fig 1a is a perspective view of the exercise chair in an ordinary looking comfortable and functional armchair mode.

Fig 1 b is a perspective view of the exercise chair with the seat frame raised to exercise mode with the backside flaps open exposing the butterfly arm

Fig 1 c is a perspective view of the exercise chair with the seat frame raised to exercise mode with the back side flaps open exposing the butterfly arms and the leg extension mechanism ready for the exerciser to perform the relevant exercises.

Fig 1 d b is a perspective view of the exercise chair with the seat frame raised to exercise mode with the back side flaps open exposing the butterfly arm in the fold away position and the pectoral bar ready for the pectoral exercise.

Fig 1 e b is a perspective view of the exercise chair with the seat frame raised to exercise mode with the back side flaps open exposing the butterfly arms and the high pull attachment in position and ready for the high pull exercise.

Fig 1 f is a perspective view of the exercise chair with the leg extension mechanism exposed and the bicycle mechanism attached ready for the bicycle exercise

. Fig 2 is a perspective view of the exercise chair with the cushions and side padding removed showing the framed structure, butterfly arms and leg extension mechanism.

Fig 3. Shows a side view of the leg extension mechanism indicating the method of exercising.

Fig 4 shows a side view of the bicycle module attached to the leg extension mechanism and the method of exercising.

Fig 4a. Shows a side view of the pedal resistance mechanism for the bicycle module/

Fig 5. shows a semi isometric view of the locking mechanism, which secures the base frame and seat, frame in locked position.

Fig 6 shows a side section of the chair in exercise mode indicating the method of using the leg extension mechanism as a biceps curl.

Fig 7 is a perspective view of the butterfly mechanism including the weight load bearing frame, pulley wheel and the method of securing the flexible weight guides to the said frame.

Fig 7a shows a perspective view of the butterfly arm and pivot rod.

Fig 8. Show the cable connections from the weight stack to the various exercise modules.

Fig 9 shows upholstery panels and cushions in perspective view.

Fig 10 shows a perspective view of the ridged base frame and the ridged seat frame with extension arms.

Description of preferred embodiment

The present invention consists of an ordinary looking easy chair, which transforms into a multipurpose exercise unit. This unit operates in opposition to a single source of reactance to movement such as a stack of free weights, rubber tension bands hydraulic air cylinders, springs, Electro magnetism, or dynamic friction. More particular the exercise chair is specially adapted for use in the home or office where space is at a premium.

The shape and style can be adapted to all styles of furniture, the shape of the arms FIG 9 83 and back 86 and sides fig 9 82 can be altered from the basic skeleton of the chair.

The exercise chair consists of a strong-ridged base frame 53 Fig 10 and a strong-ridged seat frames 54 and Fig 10. The base frame and the seat frame are secured together by rotating extension arms 55 and 72 Fig 6 and held in the raised position by locking arms 56 fig 6

The locking mechanism consists of a square sectional bar 67 placed across the base frame 53 fig 6 which rotates by means of a pull arm 69 or a handle 92 FIG 5 The locking arm has a square section cut out which locks onto the bar 67 when lifted up to exercise mode.

A spring 57 Fig 5 forces the locking arms 56 back onto the square bar 67 securing the seat in an exercise mode. The square section bar 67 has an extension piece 68 attached at either side of the bar where the locking bar is positioned, and when the square bar 67 is rotated it forces the locking arm free from the square bar allowing the seat frame 54 to be lowered onto the base frame 53 and base side structures. To raise the seat frame it is simply lifted up from the back, and is automatically held in position by the locking arms 56 as they lock into position. The rear rotating extension arms are longer than the front rotating extension arms allowing the back of the seat frame to rise higher than the front. The rear extension arms 55 have a mechanism such as a spring, gas strut, rubber band or hydraulic lift 76 fig 6 attached to the lower end and to the side base frame 58 in order to counterbalance the weight of the seat thus making it easier to lift.

There are two side base structures 58 and two sides seat structures 59 as shown in fig 6. The side base structures 58 are fixed to the base frame 53 Fig 6 and the side seat structures 59 are secured to the seat frame 54. Attached to the side base structures 58 at the lower edge is a pulley wheel bar 75 Fig 6, with two pulley wheels 20, 21 Fig 8 attached to its center position. Also attached at the lower edge of the side base structures 58 is a weight stack support frame 74 with pulley wheels 18 and 19 Fig 8 attached centrally. There are heavy-duty wheel casters 93 Fig 2 also secured to the lower edge of the side base structure, which allows the chair to be maneuverable. The side seat structures 59 are of an L shape, and a vertical back 60 Fig 7 is attached to its vertical edge stabilizing the structure. Attached to the top of the L shaped side seat structure is a upper load bearing support frame 62 Fig 7 which is also secured to the vertical back 60. The upper load bearing frame 62 consists of a rectangular frame with a pulley wheel 6 Fig 7 between the frame at its center position and parallel to the side seat structure. The rear member of the upper load bearing support frame is a load-bearing beam having a hole in its central position. There are two flexible weight guides secured at the top extremity to the load-bearing beam by means of the clamps 63 Fig 7. The lower extremity of the flexible weight guides is secured to the weight stack support frame, which is fixed the base side structure. When the chair is lifted and locked into the exercise mode the flexible guides become tight and taught allowing the weights to slide freely ups and downs its length.

The high pull extension piece 33 Fig 7 is secured to the center of a load bearing beam which forms the back of the load bearing frame 62 Fig 7. The high pull extension piece consists of a rod or bar secured at its lower extremity into the hole of the load bearing beam and having a pulley wheel 34 Fig 8 attached to the top extremity.

The butterfly arm mechanism consists of a pivot housing 15 Fig 7 having a friction insert, housing the butterfly pivot rod 65 fig 7a and fixed to the side of the L shaped seat structure 59. The pivot rod 65 is connected to the butterfly arm 10. Fig 7a having a separate cable spacer arm 11 Fig 7 pivoted to it. The vertical piece of the butterfly arm is a hollow section and houses an adjustable butterfly handgrip 66. The butterfly arm 10 is also connected to the cable spacer arm 11, by means of a connecting link 9 which pulls the cable spacer arm rotating on a vertical axis about pivot point 65a in a circular motion. The arm 11 has two vertical anchor rods 14 where the cable 16 Fig 7 passes through. The cable 16 passes through a cable stop 12 and with a simple knot or fixing can be held in position along the cable 16. When the butterfly module is used, force is exerted against forearm pads 13 Fig 8 that in turn rotates cable spacer 11 via the connecting link 9. The cable spacer 11 allows the force exerted on butterfly arm 10 to be relatively constant, as the arm 10 rotates allowing the cable 16 to be kept at a constant radius from pivot point 65a. As the arm 11 rotates it pulls cable stop 12 and pulls cable 16, which is connected to a floating pulley 17. The floating pulley 17 connected to cable 35, transmits the force to the weight stack by connection 7 and cable 8 Fig 8.

The pectoral bar 25 or handgrip 81 can be attached to a hook 26 on the cable 16 which passing through anchor 14. When the pectoral bar 25 or handgrip 81 is pushed forward the force exerted is transmitted to the weight stack via cable 16, coupling 17 to cable 35. Cable 35 is connected to no 7 coupled to cable 8 which is connected to lifting rod 3 and the force transmitted to the weight stack.

A stomach exercise is also achieved by pushing the pectoral bar 25 forward against the bar with the chest. The pectoral bar 25 and handgrip 81 can then be disconnected when not in use.

The leg extension mechanism Fig 3 consists of two parallel extension arms 22 and a hollow tubular front extension arm 23 connected inside the two arms by an elbow pivot 40. The top of the arms 22 is attached to the front member 28 of the seat frame 54 by means of a hinge 27. This hinge allows the two arms to swing freely when in exercise mode. Attached to extension arms 22 is a cable spacer piece 24 Fig 6, which rotates as the arms 22, rotates. The tee piece 29 slides inside extension arm 23 Fig 3 and the front cross bar has a protective material cushioning the ankles when in use. The tee piece 29 can be extended or retracted according to the leg length of the exerciser (he or she) by a thumb screw 39. The feet of the exerciser are hooked under the front cross bar 29 and raised and lowered against the weight stack via cable 8. When the extension arms 22 23 are pushed forwards and upwards they do not traverse in a perfect arc and tend to ride up the leg of the exerciser (he or she). In order to prevent this another instep foot bar 30 pivoting on swivel arms 73 Fig 3 is placed under the cross bar, and keeps the tee piece in a constant position on the ankle.

The biceps curl Fig 6 is achieved by lifting the instep foot bar 30, which also acts as a handgrip bar for this exercise. As the handgrip is pulled upwards the force exerted is transmitted to cable 8 which passes under the cable spacer arm 24 keeping it at a constant radius from the hinge 27. The cable spacer piece allows a constant force to be felt by the exerciser (he or she) as the extension arms are raised. The force on cable 8 is then transmitted to the weight stack pick up rod 3 which in turn lifts the weight stack.

A rowing exercise is achieved by pulling the instep bar 30 away from the chair while the exerciser is seated on the floor. As the instep bar 30 is pulled away from the chair force is exerted to cable 8 which is then transmitted to the weight stack pick up rod 3 which in turn lifts the weight stack.

The bicycle attachment is connected to the leg extension module as shown in Fig 4. The bar 50 is of a square section material usually metal having a connection lug no 49 attached. This connection lug slots into the square hollow section extension arm no 23. The bar 50 is held in position on the two arms no 22 by a bolt with a hand turn knob 47 passing through bar 50 and tightened with cross plates 47a onto the arms 22. The pedal arm is a zed shape rod no 51 held onto a sliding tube 81 by a clamp 77 and 79 and turn bolt 48. The rod has two standard bicycle pedals 52 attached either side of the rotating crankshaft. The crank shaft of the rod 51 passes through a friction sleeve no 80 and as the turn bolt 48 is tightened the friction on the crankshaft increases thus causing the exerciser (he or she) to apply a greater physical force to turn the pedals 52. The tube 81 slides along bar 50 to allow the exerciser to adjust the position of the pedals to suit his or her leg length. The tube 81 is kept in position along bar 50 by a turn bolt 78 Fig 4a.

Connection links

The weight stack 1 Fig 8 is of a conventional construction comprising of a stack of rectangular weights slide mounted to a pair of flexible vertical guides 4. Each weight having a central horizontal hole registering with a respective hole in the pick-up rod no. 3. The central pick-up rod has a lift cable 8 attached transcending over a pulley wheel 6. The amount of weight to be lifted is selected by engaging a lock pin number 2 through the appropriate hole in the weights and into the pick-up rod number 3. Thus when the cable is adequately tensioned the selected number of weights in the stack are lifted.

The cable function shewn in figure 8 comprises mainly of five cables namely, cable 8, connected to the pick-up rod number 3 passing over the pulley wheel number 6, down under the pulley wheel number 18, to pulley wheel number 21 onto the leg extension module and connected to front extension tube 23. Cable number 35 is connected to cable 8 by a coupling 7, which can be a simple knot or a ring fastened to cable 8 where the cable 35 is fastened. Cable 35 is connected to coupling 7, then passes down under pulley 19 and 20 and is connected to a floating pulley coupling 17 Fig 8. Cable 16 passes through the floating pulley 17 over pulleys 5 and has a hook 26 at each of the extremities of the cable 16. The hook 26 is attached to each end the pectoral bar 25, or hand grips 81 Fig 7 by means of a ring fastening. When the pectoral bar 25 or hand grip 81 is pushed forward, force is transmitted from cable 16 to cable 35 via floating pulley 17 which is connected to cable 8 via connection 7. The force is then transmitted to pick up rod 3 where the appropriate number of weights is lifted. Cable 16 has a cable stop 12 secured along each side of its length Fig 8 which hooks onto vertical anchor rods 14 fixed to the cable spacer arm 11. When the butterfly press pad 13 is rotated in a forward direction, it rotates the cable spacer arm via connecting link 9 and transmits the force to the weight stack as described above. Cable 31 is also connected to pick up rod 3 Fig 8 and to connection 36. When the high pull extension piece 33 is attached to the upper support bearing beam a second cable 31a is connected to cable 31 via coupling 36 travels over pulley wheel 34 and to a hook or connection on the high pull bar 32. When the high pull bar is pulled downwards force is transmitted via cable 31a and to cable 31 to the weight stack 1 as described.

Upholstery

The basic upholstery of the exercise armchair is a padded side panels Fig 9 82,83 fixed to the side base structures 58 and to the side seat structure 59 and covered with an upholstery material. The back support 60 Fig 2 is secured to the vertical edge of the seat side structure 59 and an upholstered panel 86 attached thereto forming the padded back of the exercise chair. The side flaps Fig 9 90 conceals the back panel 59a and the butterfly arms 10.

The side flaps are flexibly hinged at the lower edge to the outside arm of the chair, and held in position by the upholstery material on the back panel 86. The seat of the chair is a normal firm conventional cushion 85 placed onto the seat frame 54.

The top portion of the backrest 87 Fig 9 consists of a upholstered top panel secured to the load bearing frame with an opening at its center for the high pull extension piece. A specially shaped cushion 88 is placed over the arms of the chair concealing the butterfly rod housing. A fixing piece 91 is secured to the front member 28 of the seat frame 54 Fig 2 to which the front upholstered panel or material 89 is fastened concealing the leg extension mechanism. The back panel 59a fig 7, the top upholstered panel 87, the padded back panel 86, and side arms 83 Fig 9 form a recess at the rear of the backrest 60 where all of the butterfly mechanism is stowed away and the side flap placed in position.

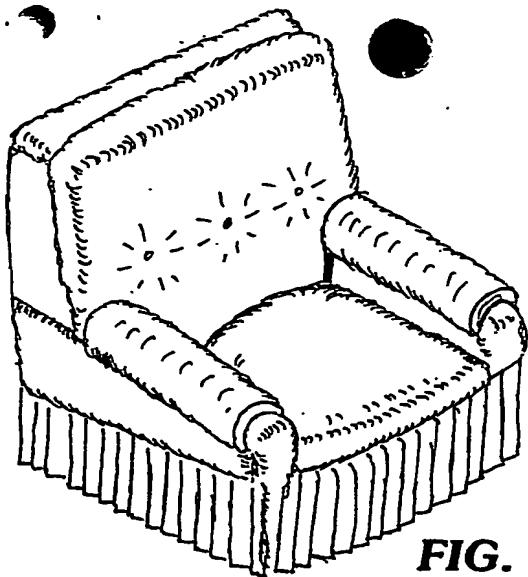


FIG. 1a

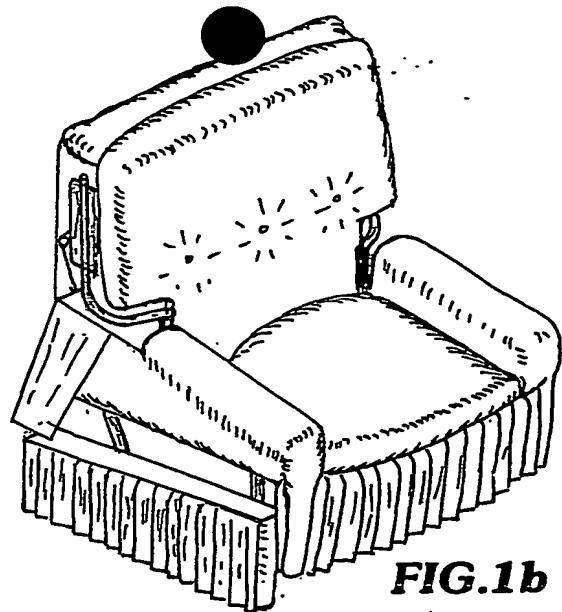


FIG. 1b

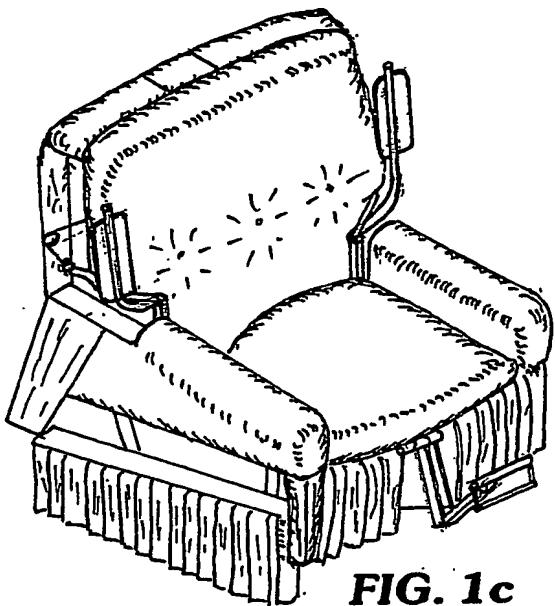


FIG. 1c

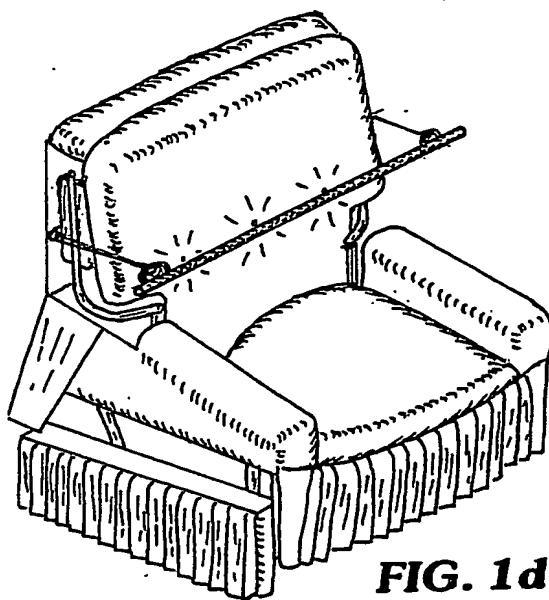


FIG. 1d

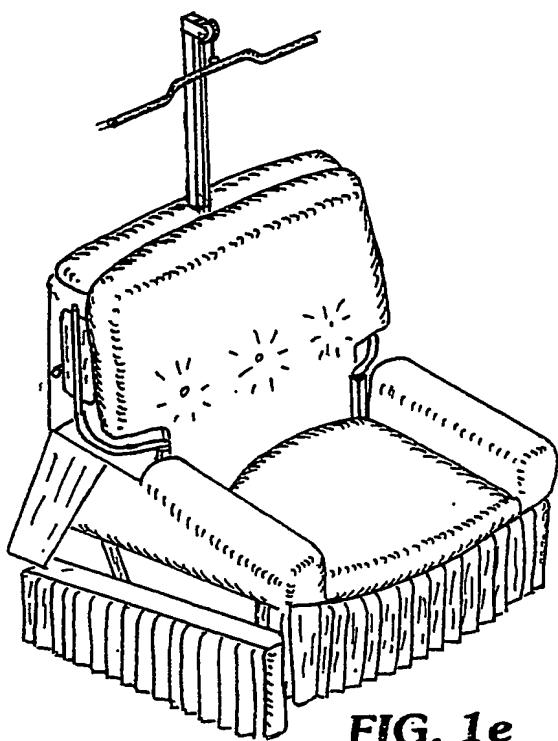


FIG. 1e

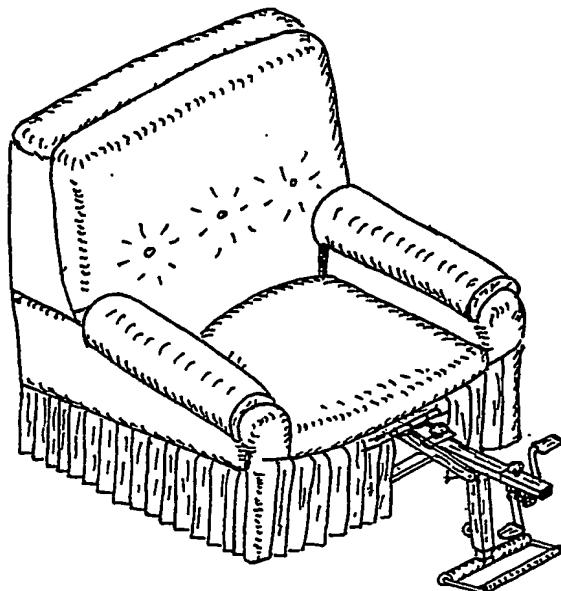


FIG. 1f

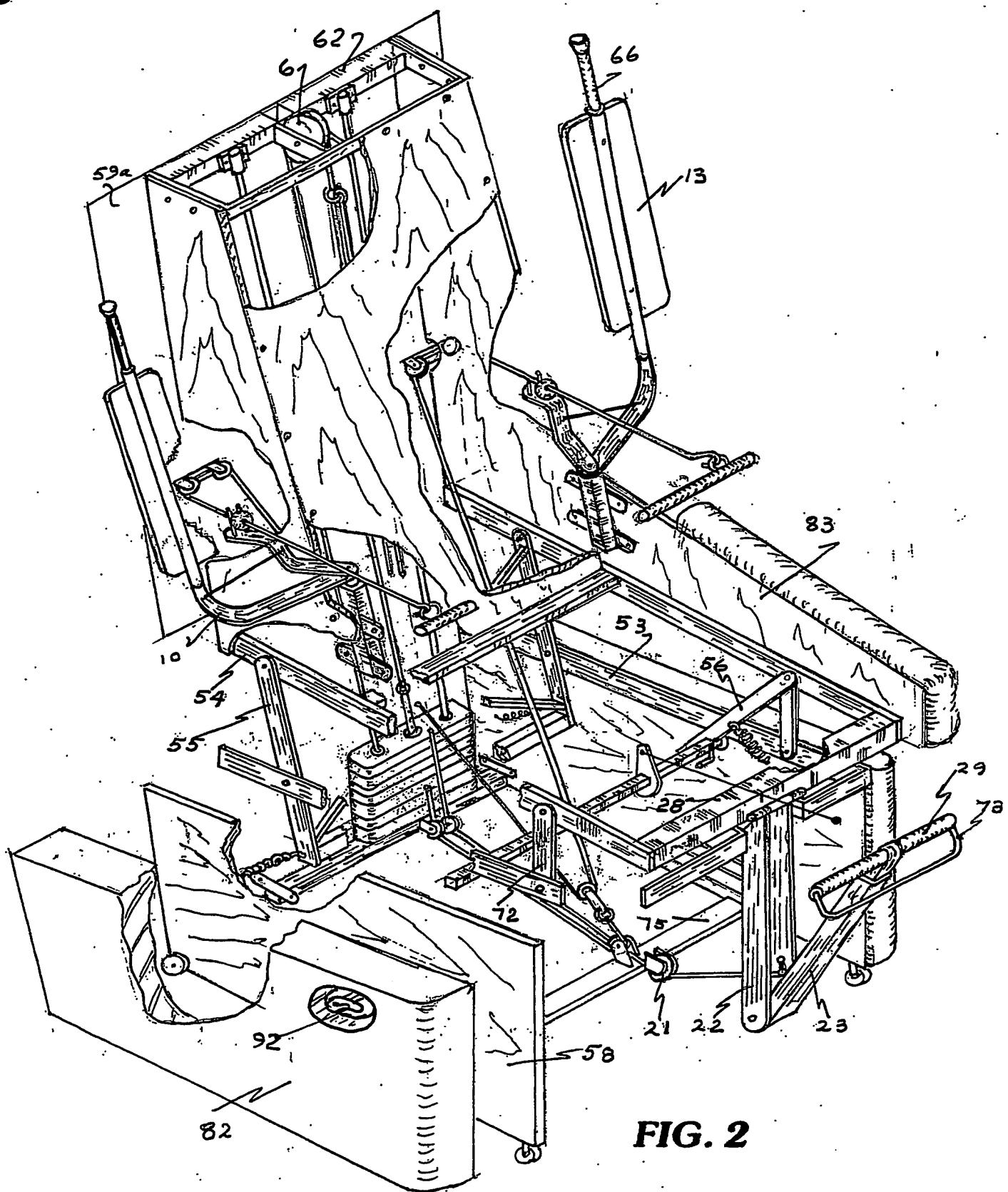


FIG. 2

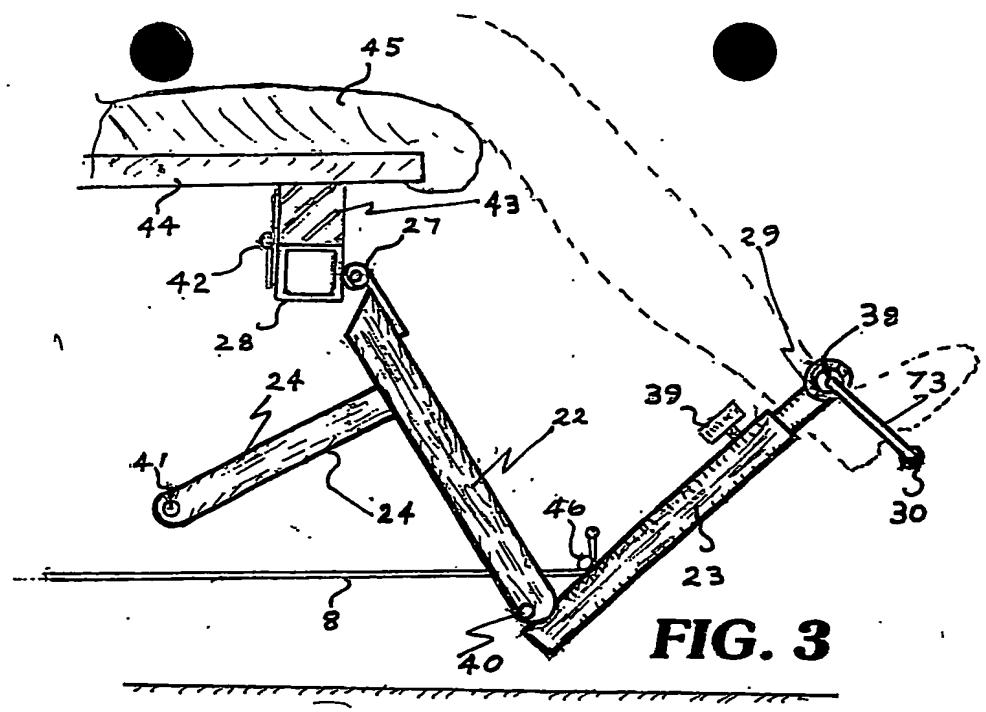


FIG. 3

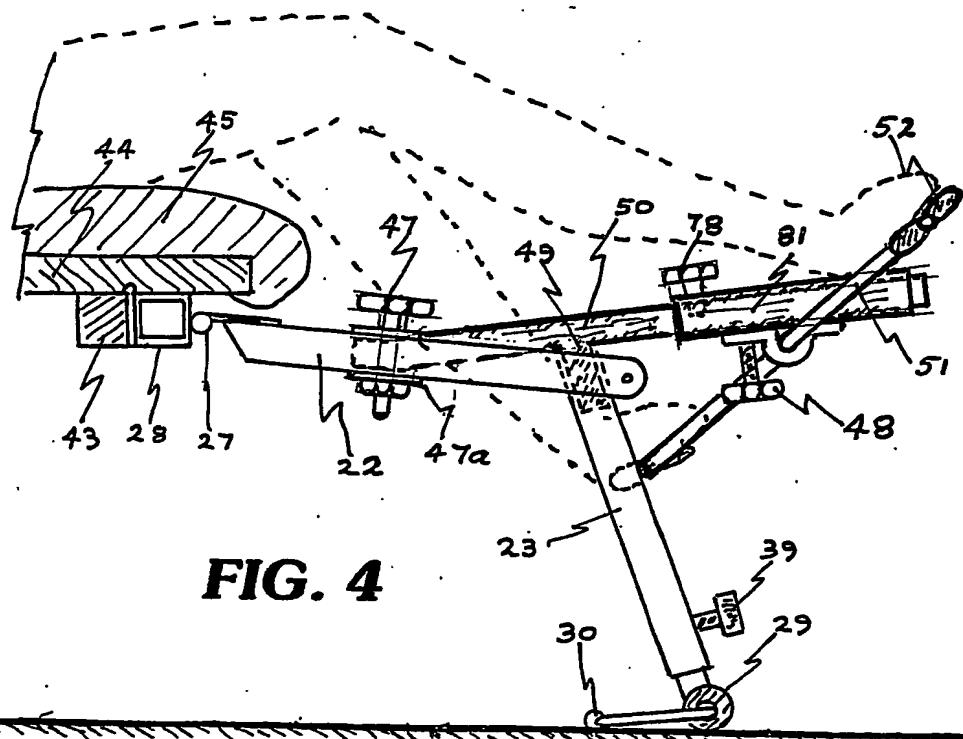


FIG. 4

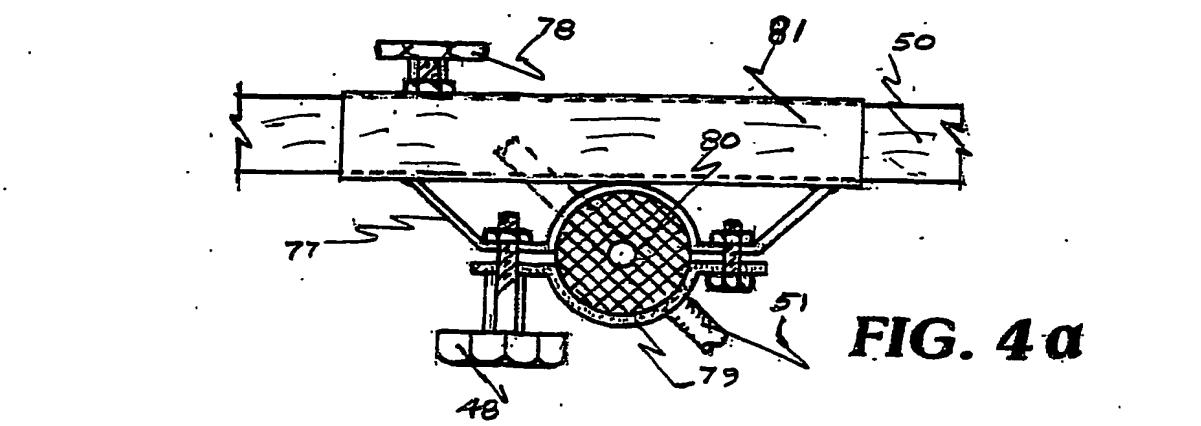


FIG. 4a

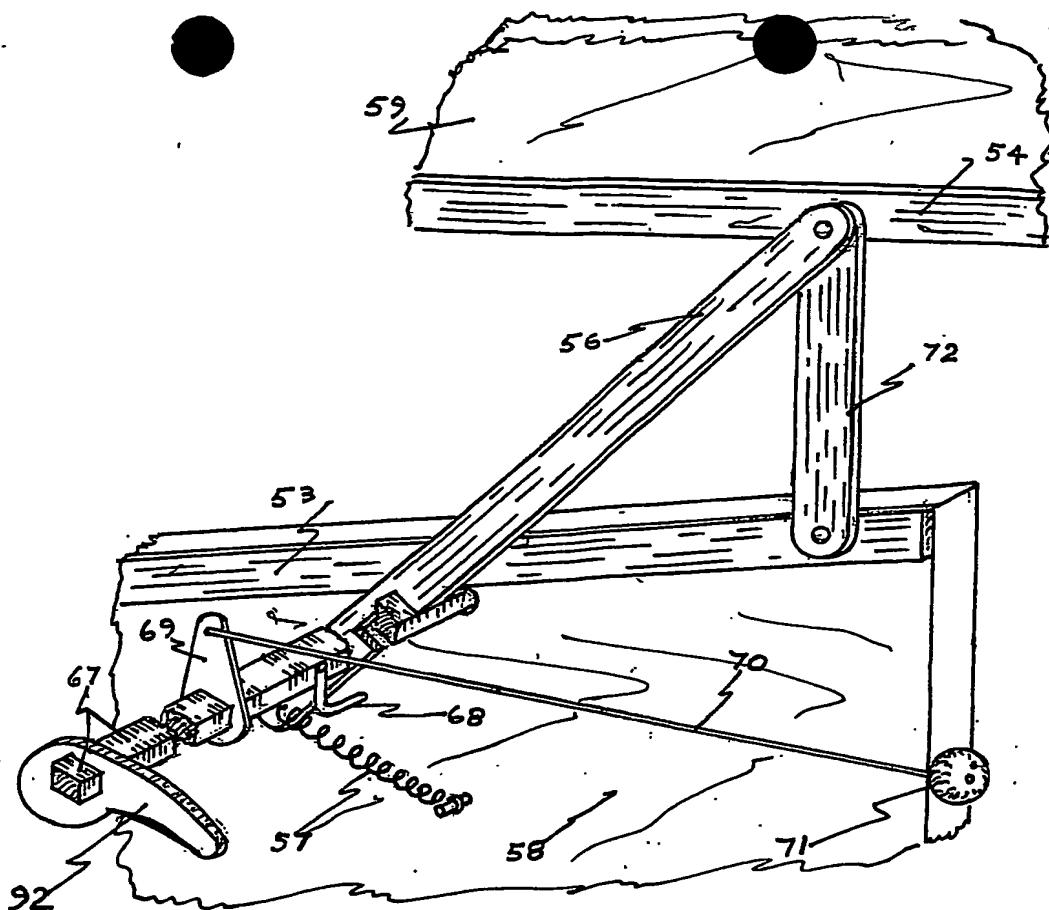
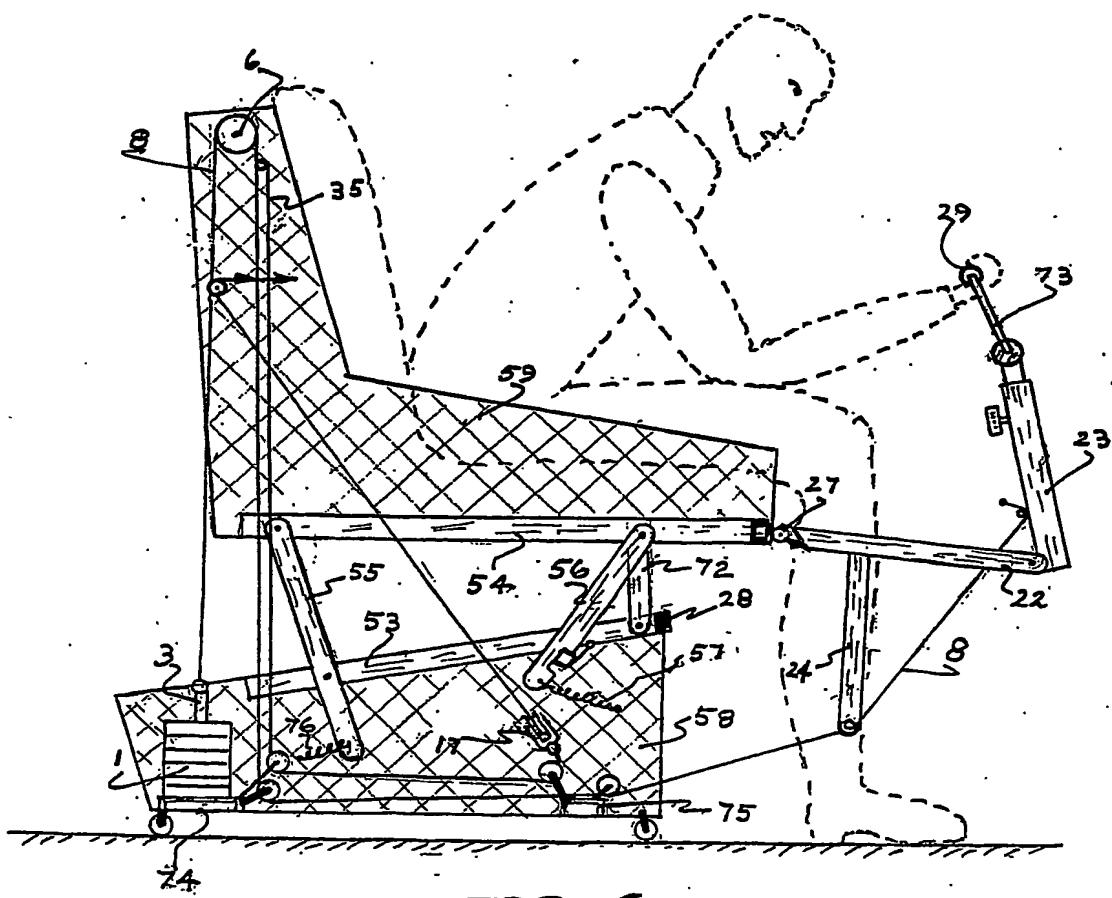


FIG. 5



EIC 6

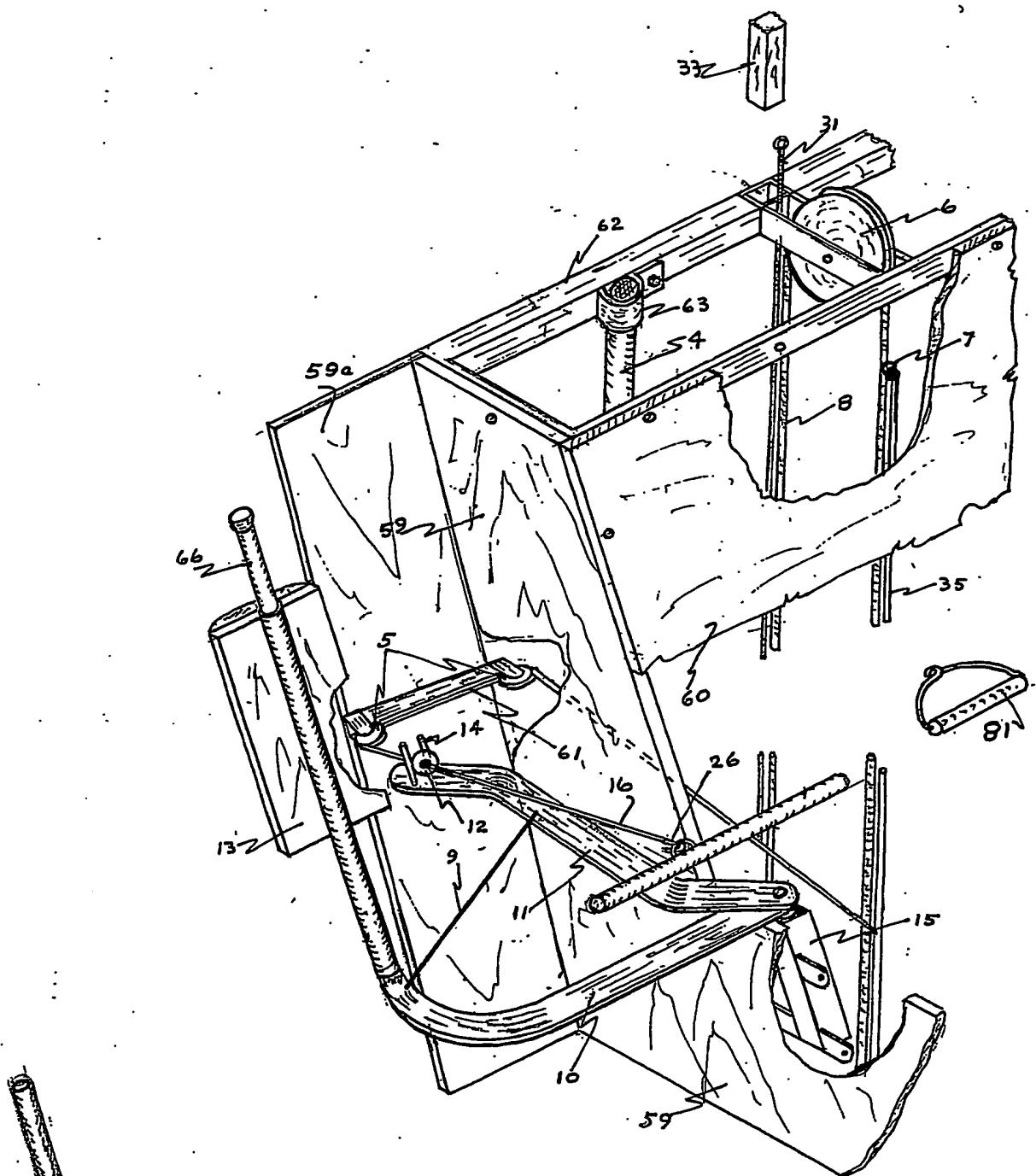


FIG. 7

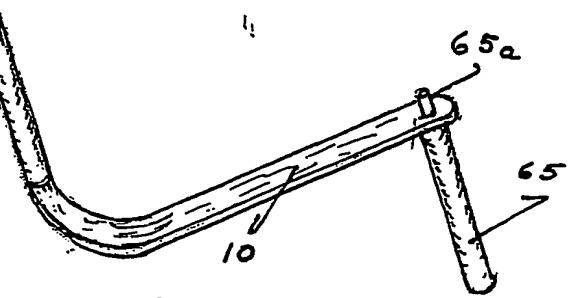


FIG. 7a

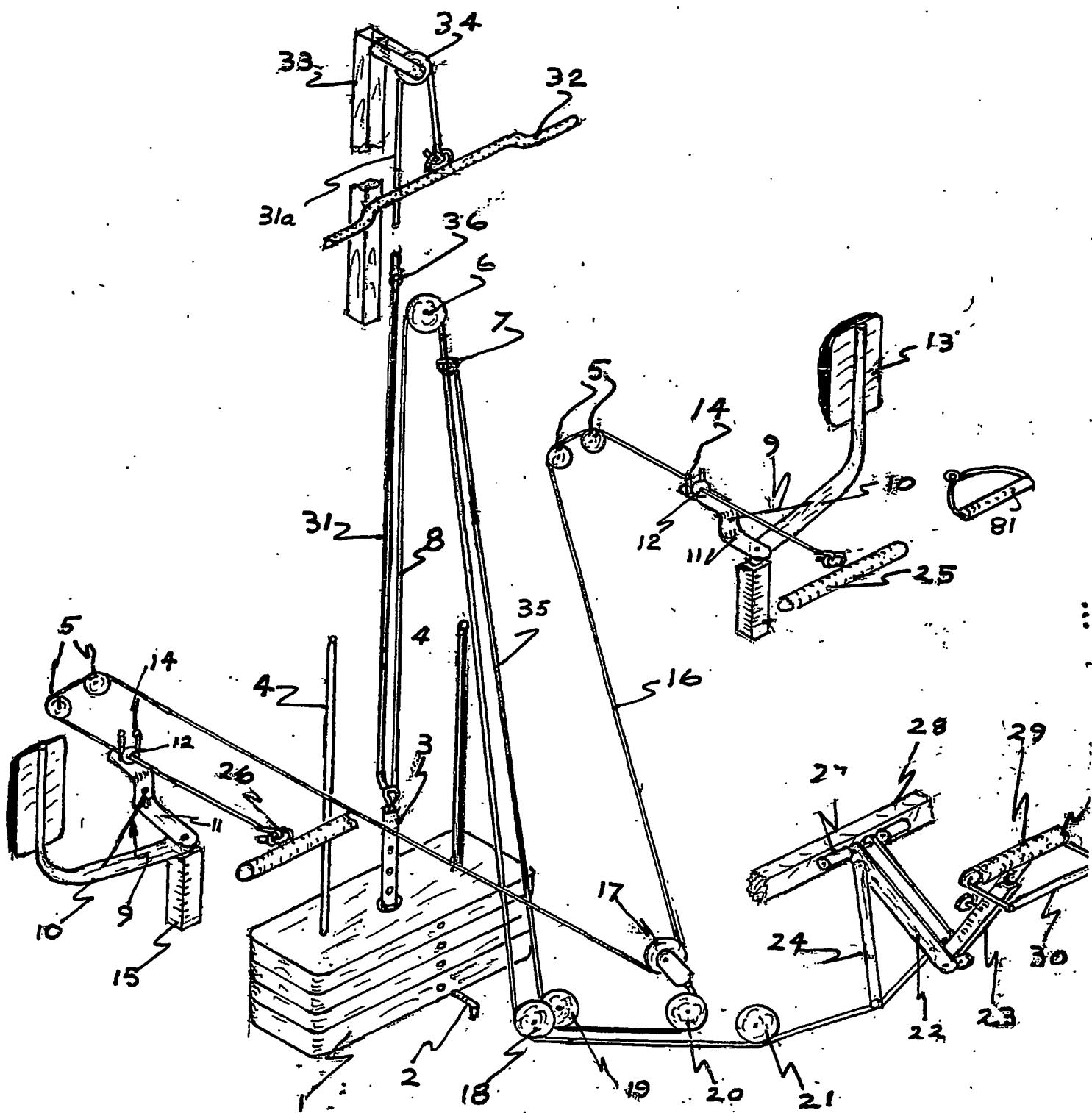


FIG. 8

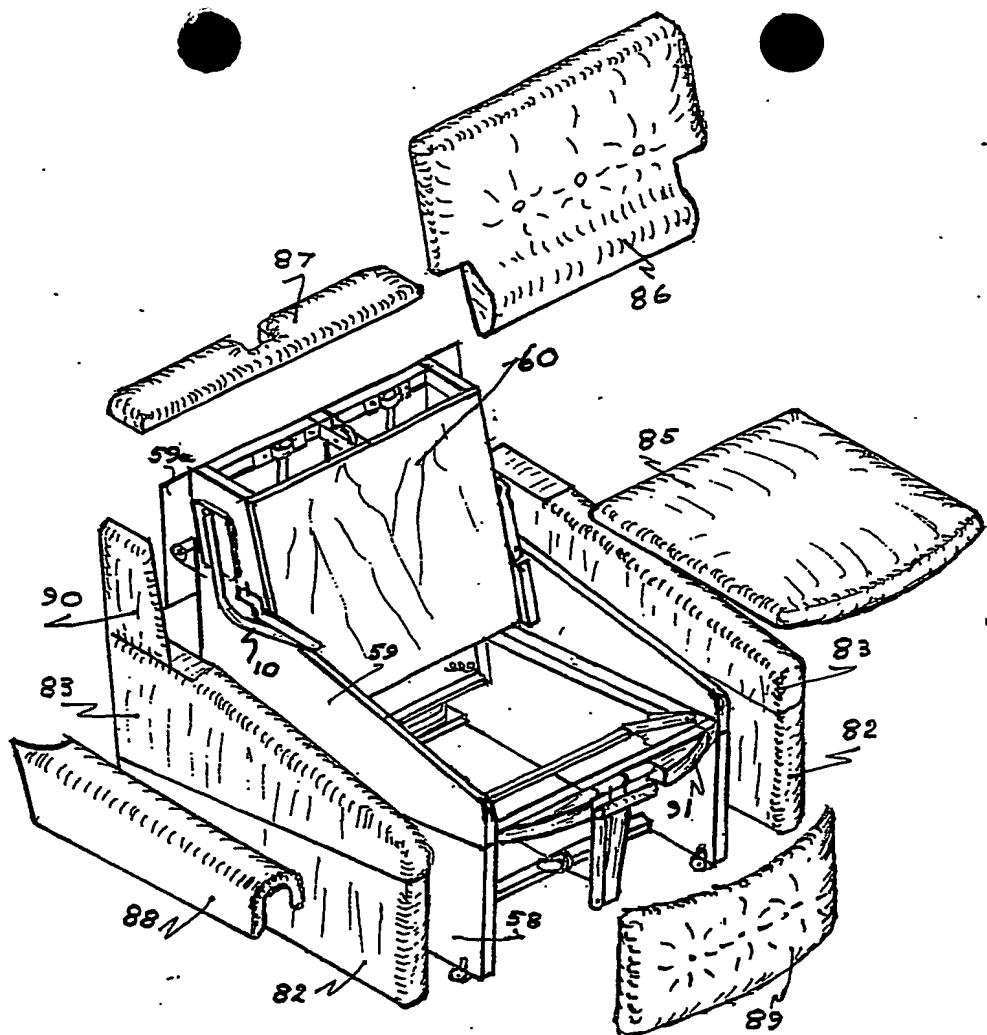


FIG. 9

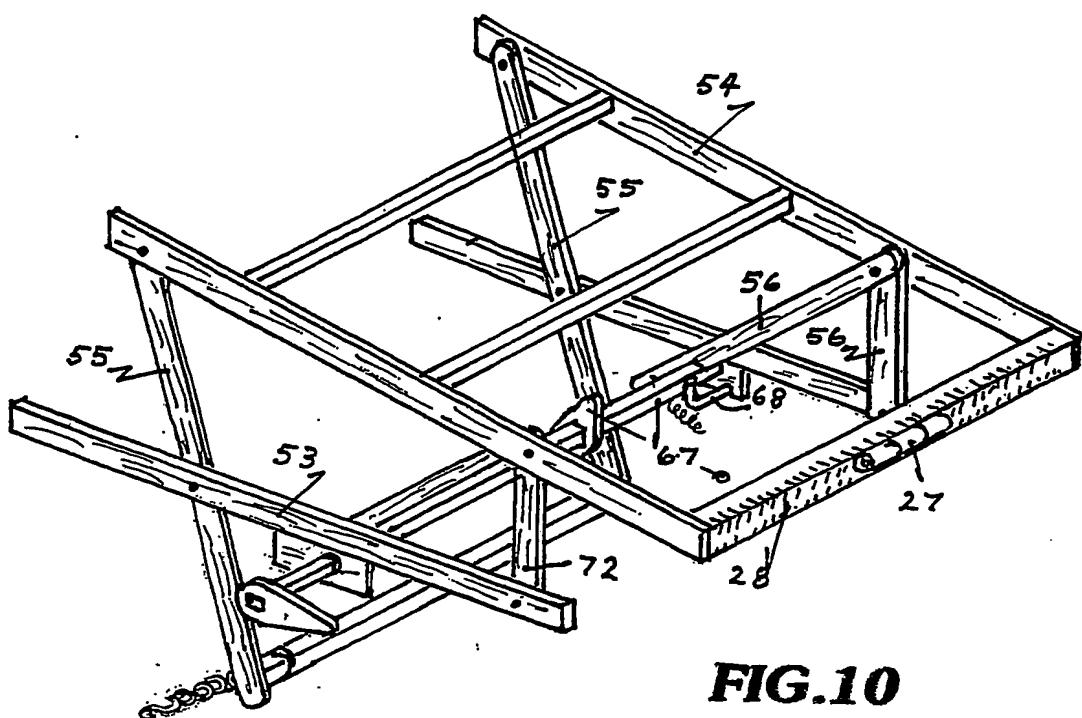


FIG. 10

PCT Application
PCT/GB2004/000275

